

NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD

**RANGE PLANTING**

(acre)  
CODE 550

**DEFINITION**

Establishing adapted perennial vegetation such as grasses, forbs, legumes, shrubs, and trees.

**PURPOSES**

This practice may be applied as part of a conservation management system to accomplish one or more of the following purposes:

- \* Restore a plant community similar to its historic climax or the desired plant community.
- \* Provide or improve forages for livestock.
- \* Provide or improve forage, browse or cover for wildlife.
- \* Improve water quality and quantity.

**CONDITIONS WHERE PRACTICE APPLIES**

On rangeland, native or naturalized pasture, grazed forest or other suitable location where the principle method of vegetation management will be with herbivores. This practice shall be applied where desirable vegetation is below the acceptable level for natural reseeding to occur, or where the potential for enhancement of the vegetation by grazing management is unsatisfactory.

Soil having reduced levels of soil micro-organisms will respond poorly to range planting. Several strains of soil endomycorrhizae and algae have been utilized during landscape restoration to restore soil productivity and insure range planting success.

**CRITERIA**

**General Criteria Applicable For all The Purposes Stated Above.**

Species, cultivars or varieties selected, must be compatible with management objectives and adapted

to climate conditions, soils, landscape position, (e.g., aspect) and site(s).

Species, cultivars or varieties selected shall provide adequate cover to control erosion by wind and/or water within an acceptable period of time.

Seedbed preparation and planting methods will be suitable to meet any special needs for obtaining an acceptable establishment of planted materials/

Planting depths, dates, seeding rates, soil amendments, inoculum, and fertilizer needs for establishment, minimum seed quality standards, and management during the establishment period such as weed control and deferment from grazing shall be followed to enhance establishment success.

Seeding rates will be calculated on a pure live seed (PLS) basis or percent germination.

**Additional Criteria For Improved Forages For Livestock.**

Selection of a species or combination of species shall be designed to meet the desired nutritional and palatability requirements for the kind and class of livestock.

Selection of species or combination of species shall be designated to meet the desired season of use or grazing period.

**Additional Criteria For Improved Water Quality And Quantity.**

Select a species or combinations of species that will maintain a stable soil surface and increase infiltration.

Species that have high evapotranspiration rates, such as some woody species and phreatophytes, shall not be planted when watershed yields are the primary objective.

A mixture of shrubs and trees indigenous to the site shall be planted when riparian area, stream bank stability and water temperature criteria are important.

### **Additional Criteria For Improving Forage, Browse Or Cover For Wildlife.**

Selection of planted species shall meet dietary and palatability requirements for the intended wildlife species.

Species will be selected and planted in a designed manner that will meet the cover requirements of the wildlife species of concern.

### **Additional Criteria**

Recommended seeding mixtures and rates are given in the Vegetative Guide in Section II of the Field Office Technical Guide.

### **Mediterranean Climatic Zone**

Major Land Resource Areas 4, 5, 14, 15, 17, 18, 19 and 20

#### **1. Time of Planting**

##### **a. Annual Legumes and Grasses**

Seed by October 15. Inoculate annual legumes with proper bacteria.

On burned areas, broadcast or drill seed as soon as possible and before the first rain in the fall.

##### **b. Perennial Grasses**

Seed by December 15.

#### **2. Seedbed Preparation**

##### **a. Annual Legumes and Grasses**

If a no-till drill is available, drill directly into existing annual plant community after excess mulch has been removed by grazing, or

If a drill is not available, lightly disk or harrow to loosen the top 1" of soil, and broadcast the seed.

Sites with compacted surfaces may benefit by disking or ripping 4-6 inches deep prior to seeding (Grazing Land Mechanical Treatment - 548).

##### **b. Perennial Grasses**

Maintain a clean, weed-free seedbed by fallowing or close grazing starting in late Spring before the annuals have set seed, or

If summer forage is desired or cleanup crop is needed, plant sudangrass or summer grain in late Spring. Growth can be mowed or grazed in summer before seed set, or

Fallow with chemicals during summer and just before planting.

#### **3. Method of Seeding**

##### **a. Annual Legumes and Grasses**

Band seeding and fertilizing with grain drill.

Drilling with special range drills including no-till drills, or

Broadcast, followed by cultipak roller, harrow, drag or other suitable means to cover the seed. Broadcast before or dribble seed onto land imprinter.

##### **b. Perennial Grasses**

Drill with a grain drill, or no-till drill, or a special range drill.

Broadcast, covering the seed with a harrow or drag. Broadcast before or dribble seed onto land imprinter.

#### **4. Fertilization**

Inoculate soil with applicable mycorrhizal material if soil micro organisms have been depleted. Apply inoculum at the rate of 5 l/acre. Application method must insure inoculum is covered with at least two inches of soil.

##### **a. Annual Legumes**

Fertilize based on soil test or plant tissue test results whenever needed.

When the soil test shows available phosphorous or sulfur is:

Less than 5 ppm

Use 500 lbs. single superphosphate (100 lbs. P<sub>2</sub>O<sub>5</sub>, 60 lbs. sulfate sulfur).

5-10 ppm

Use 250 lbs. single superphosphate (50 lbs.  $P_2O_5$ , 30 lbs. sulfate sulfur).

b. Annual Grasses

If a soil test or plant tissue test is not available, fertilize with 100 pounds of 16-20-0 if soil fertility is depleted or the site is eroded.

c. Perennial Grasses

Fertilizer is not required during the establishment year, however, when seed is drilled, 15 to 20 pounds of 16-20-0 starter can be banded with the seed to assist the stand to development.

5. Management of the New Stand

a. Annual Legumes and Grasses

Graze moderately during first Winter when field is dry enough. Heavy short term grazing may be used to reduce competition.

Do not graze April 15 to June 1 to allow flowering and seed set. This period will be earlier in southern counties, and south and west facing slopes.

Graze during the dry season.

b. Perennial Grasses

Do not graze until the stand is well established. This may require deferring the grazing more than one growing season.

Control weeds by mowing or with herbicides. High intensity - Short duration grazing during early spring will also reduce weeds without damaging seeding.

**Continental Climatic Zone**

Major Land Resource Areas 21, 22, 23, 26.

1. Time Planting

a. Perennial Grasses

Spring seedings should be made as early as the soil can be properly prepared. If cheatgrass is significant, prepare seedbed after cheatgrass has emerged.

Fall seedings should be made late enough so no germination will take place until Spring. Late Fall planting is generally recommended. Fall or Spring plantings can be successful if weed control (chemical or mechanical) is practiced.

b. Perennial Legumes

Fall seeded Perennial Legumes may be subject to frost damage.

2. Seedbed Preparation

a. Perennial Grasses

Maintain a clean, weed-free seedbed by fallowing starting in late Spring before the soil dries and annual weeds set seed, or

Use a Summer clean-up crop of sudangrass and drill directly into the stubble.

3. Method of Seeding

a. Perennial Grasses and Legumes

Drill with grain drill, or a no-till drill, or a special range drill, or

Broadcast, covering the seed with a harrow or drag. Broadcast before or dribble seed onto land imprinter.

4. Fertilization

Inoculate soil with applicable mycorrhizal material if soil micro organisms have been depleted. Apply inoculum at the rate of 5 l/acre. Application method must insure inoculum is covered with at least two inches of soil.

a. Perennial Grasses

Grasses planted alone usually do not require fertilizer.

b. Perennial Legumes

Apply 20 to 40 pounds of  $P_2O_5$  at seeding time if needed.

5. Management of the New Stand

a. Perennial Grasses

Do not graze until stand is well established. This may require more than one growing season.

Control weeds by mowing or with herbicides. High intensity - short duration grazing during early spring will also reduce weeds without damaging seeding.

#### b. Perennial Legumes

Do not graze until stand is well established. This may require more than one growing season.

Control weeds by mowing.

### CONSIDERATIONS

Planting materials selected should contribute to wildlife and aesthetics when opportunities exist.

Other practices such as Brush Management, Pest Management, or Grazing Land Mechanical Treatment may be used to promote a satisfactory site preparation to insure a successful range planting.

Use of certified planting materials should be encouraged, however, distance and source limitations on seed and planting stock should be considered in terms of logistics and costs.

Any special handling requirements for planting materials need to be followed for best results, (e.g., beards or awns on seed, hard seed coats, seed mixture ratios).

(1) Land to be seeded must have soil and climate that can support a satisfactory cover of adapted range forage plants; (2) grazing management alone can not restore a satisfactory cover of desirable species within a reasonable period of time; (3) species or cultivars selected for seeding must be compatible with the planned management of the entire operation unit; (4) management must be able to maintain the stand after seeding is completed.

### Water Quantity

This practice is designed to reestablish and/or enhance vegetation on an area. Runoff may increase during the establishment period, but will be reduced when the reseeded area becomes established. Vegetation will reduce evaporation by providing cover over the soil surface. Established and growing vegetation will utilize and transpire some of the increased soil moisture resulting from increased infiltration and decreased evaporation. On many

rangeland areas, increase in the more desirable grasses causes prolonged stream flow and aquifer recharge. Livestock induced compaction (Hoof pans) will be broken during this process if mechanical seedbed practices are used, allowing for greater infiltration. In areas of snowfall, increased vegetation will cause snow to be distributed more evenly,

1. Effects of improved vegetation on water budget, especially volumes and rates of infiltration and runoff.
2. Where applicable, consider the effects of snowcatch and melt on the water budget.
3. Potential for a change in plant growth and transpiration because of changes in the volume of soil water.
4. Effects on downstream flow or aquifers that would affect other water uses or users.

### Water Quality

Increased erosion and sediment yield may occur during the establishment of this practice. This is a temporary situation and sediment yields decrease when seeding becomes established. If chemicals are used in the reestablishing process, chances of chemical runoff into downstream water courses are reduced if application is applied according to label instructions. After establishment of the stand, vegetation slows runoff, acts as a filter to trap sediment, and sediment-attached substances, increase infiltration, and decreases sediment yields.

1. Effects of erosion and the movement of sediment and soluble and sediment-attached substances carried by runoff.

### Endangered Species Considerations

Determine if installation of this practice with any others proposed will have any effect on any federal or state listed Rare, Threatened or Endangered species or their habitat. NRCS's objective is to benefit these species and others of concern or at least not have any adverse effect on a listed species. If the Environmental Evaluation indicates the action may adversely affect a listed species or result in adverse modification of habitat of listed species which has been determined to be critical habitat, NRCS will advise the land user of the requirements of the Endangered Species Act and recommend alternative conservation treatments that avoid the adverse

effects. Further assistance will be provided only if the landowner selects one of the alternative conservation treatments for installation; or at the request of the landowners, NRCS may initiate consultation with the Fish and Wildlife Service, National Marine Fisheries Service and/or California Department of Fish and Game. If the Environmental Evaluation indicates the action will not affect a listed species or result in adverse modification of critical habitat, consultation generally will not apply and usually would not be initiated. Document any special considerations for endangered species in the Practice Requirements Worksheet.

Some species are year-round residents in some streams, such as, freshwater shrimp. Other species, such as steelhead and salmon, utilize streams during various seasons. Be aware that critical periods, such as spawning, eggs in gravels and rearing of young may preclude activities in the stream that may directly affect the stream habitat during those periods. For example, there should be no disturbance of stream gravel beds that may have eggs in them. That could include any equipment in the stream or even walking in the stream or work upstream that may result in sediment depositing in the gravel beds. Document any special considerations for endangered species in the Practice Requirements Worksheet.

## **PLANS AND SPECIFICATIONS**

For standard plantings, appropriate forms, worksheets, etc. may be used to develop specifications and documentation. Plantings that require more detailed information, may require the use of other practices prior to planting and require a specific site specification prepared.

### **Specifications Guide**

(1) Ecological sites or other groupings or soils suitable for seeding; (2) range or forage conditions requiring seeding to recover within a reasonable time; (3) locally adapted species and mixtures, including acceptable sources of seed if important; (4) seeding methods, including seedbed preparation; (5) requirements for brush weed control if necessary to make the seeding effective; and (6) period of protection from grazing required to promote establishment of the stand.

## **OPERATION AND MAINTENANCE**

### **Operation**

Identify any required items needed to assist in stand establishment such as mowing, burning, flash grazing and herbicides to control weeds. Address insect and disease control needs where they are likely to create establishment problems.

### **Maintenance**

Any necessary replanting due to drought, insects or other uncontrollable event which prevented adequate stand establishment should be addressed as soon as possible. Recommendations may vary from complete re-establishment to over-seeding or spot replanting. Thin stands may only need additional grazing deferment during the growing season.